

REMARKS/ARGUMENTS

Favorable reconsideration by the Examiner is respectfully requested in light of the preceding amendments and accompanying remarks.

Rejection under 35 U.S.C. § 112

Claims 4 – 8 stand rejected as being indefinite for failing to particularly point out and distinctly claim the subject matter that applicant regards as the invention. Claims 4, 5, and 6 have been amended in order to more particularly point out the subject matter applicant regards as the invention. Applicant would like to note that the format in which the claims were originally submitted is desired in European practice. Accordingly, applicant submits that the amendments were made in order to overcome a formality and should not be construed as limiting the scope of the affected claims.

Rejection under 35 U.S.C. § 102

Claims 1 – 8 stand rejected under 35 U.S.C. § 102 over WO 03/088344 to Honeywell International, Inc. (“Honeywell”). Honeywell teaches a composition and method for the production of nanoporous silica dielectric films. The nanoporous films of the Honeywell reference are prepared using silicon-containing pre-polymers that will undergo a condensation reaction to form silicon-containing polymers in a process that allows crosslinking at lowered gel temperatures by means of a metal-ion-free onium or nucleophile catalyst. Porogens are an essential component of the process of Honeywell because pores in the compositions taught by Honeywell are produced by thermal removal of the porogens (pg. 14 of Honeywell, lines 10-15).

The current application discusses the use of porogens as an illustration of the prior art. In Honeywell, the porogen is an essential component because pores are produced by thermal porogen removal. The porogens that can be used include polyalkylene oxide and monoether of polyalkylene oxide (pg. 15 of Honeywell, lines 25-31). The porogen is combined with a silicon-containing prepolymer having Formula I (pg. 10 of Honeywell, line 8) and then removed by the application of heat (pg. 14 of Honeywell, lines 10-13). Thus, the Honeywell reference teaches examples similar to a method discussed in the present specification as being in the prior art (see pg. 3 of the application, lines 5-11).

In contrast to the Honeywell reference, a porogen is not required in the current invention. In the current invention, a quaternary ammonium salt directs the formation of the structure of the composition, and this direction results in pores being formed (see pg. 11 of the application, lines 1-11). There is no thermal removal of porogens.

Independent Claims 1 and 6 now recite a composition “consisting essentially of” siloxane polymer and one or more quaternary ammonium salts. As amended, the claims clearly distinguish over the composition of Honeywell which clearly requires a porogen.

The catalysts used in Honeywell also reveal a difference in the composition produced by Honeywell and that of the current invention. Honeywell uses an onium or nucleophile catalyst. The catalysts include sodium hydroxide and sodium sulfate for non-microelectronic applications and an ammonium compound and a phosphine compound for microelectronic applications requiring a metal-free catalyst (pg. 13 of Honeywell, lines 19-26). For “microelectronic applications,” the composition of Honeywell should contain a catalyst that may comprise tetraorganoammonium compounds and tetraorganophosphonium compounds. Honeywell lists some of the quaternary ammonium salts, such as tetramethylammonium acetate, that are used in the current invention to direct the formation of the composition.

In Honeywell, the aforementioned materials are simply being used as catalysts that promote a condensation reaction to form the prepolymer. As a result, Honeywell teaches that tetramethylammonium hydroxide can be used interchangeably with tetramethylammonium acetate. In the current application, however, the quaternary ammonium salts are being used to direct the formation of the porous composition, and they are not fungible. The use of quaternary ammonium hydroxide is undesirable because it is known to decrease the stability of the coating solution and can lead to the corrosion and deterioration of semiconductor devices (see pg. 9 of the application, lines 18-26; pg. 10 of the application, line 1). In fact, according to the present application, the use of tetramethylammonium hydroxide in Comparative Example 1 resulted in gelation after three days, as is shown in Table 1 of the specification. Under U.S. patent law, in order to anticipate the claims, the subject matter of the reference must be disclosed with some “sufficient specificity.” If the reference is directed to a broad range of substances, and there is evidence of unexpected results within a narrower claimed range, it may be reasonable to

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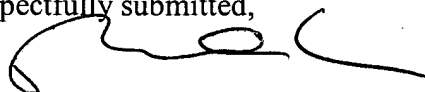
conclude that the narrow range is not disclosed with sufficient specificity to constitute anticipation of the claims by the cited reference. The preceding example demonstrates that the present invention has unexpected results that were not disclosed with sufficient specificity in the prior art.

Conclusion

In view of the amendments and foregoing remarks, Applicant submits that all of pending Claims 1-8 are both novel and non-obvious with respect to the prior art and are now in condition for allowance. Applicant respectfully requests that the claims be allowed. If the Examiner wishes to discuss the application or the comments herein, the Examiner is urged to contact the undersigned by telephone.

It is not believed that extensions of time or fees for net addition of claims are required, beyond those that may otherwise be provided for in documents accompanying this paper. However, in the event that additional extensions of time are necessary to allow consideration of this paper, such extensions are hereby petitioned under 37 CFR § 1.136(a), and any fee required therefore (including fees for net addition of claims) is hereby authorized to be charged to Deposit Account No. 16-0605.

Respectfully submitted,



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